

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An interactive printed material and sensor device combination comprising printed material having information incorporated in printing applied to a substrate which is not comprehensible by ~~the a~~ human observer, and wherein the sensor device is adapted to sense a property of the printed material and discriminate between regions of the printing thereof, the sensor device including a display screen and means adapted to display on the screen a set of ~~stylised~~ stylized faces displaying, to the human observer, differing conditions, and wherein the sensor device is configured to resemble an animal or humanoid figure with the screen positioned corresponding to ~~the a~~ position of ~~the a~~ face thereof, and wherein the sensor device includes a sensor head located at an extremity of the humanoid or animal figure.

2. (Currently Amended) A combination according to Claim 1 wherein the printing on the substrate contains information discernible by ~~the an~~ amount of infrared absorptive material in ~~the~~ ink used to effect ~~such said~~ printing.

3. (Currently Amended) A combination according to Claim 1 or 2 wherein the means to display for displaying a

~~stylised stylized~~ face is configured to display screen areas representative of eyes, nose and mouth, the areas representative of at least eyes and mouth being capable of displaying different ~~stylisation~~ stylistic thereof in different combinations to reflect different emotions.

4. (Currently Amended) A combination according to ~~any one of Claims 1 to 3~~ Claim 1, wherein the sensor device has a casing configured as a ~~stylised stylized~~ humanoid or animal elongate figure, and wherein the casing includes a sensor module with ~~a~~ the sensor head located adjacent one end thereof.

5. (Currently Amended) A combination according to Claim 4 wherein, adjacent the sensor head, is a pressure-operated switch adapted to trigger sensing of ~~a~~ the property of the printed material when the figure is stood on ~~the~~ a surface thereof and in ~~the~~ a region of printed material under ~~the~~ an end adjacent the sensor head.

6. (Currently Amended) A combination according to ~~any one of Claims 1 to 5 and including~~ Claim 1 further comprising a sound-generating circuit and ~~a~~ a sound transducer.

7. (Original) A combination according to Claim 6 wherein the circuit is adapted to provide an intelligible speech output.

8. (Currently Amended) A combination according to Claim 7 wherein the sensor device includes means to vary at least ~~the~~ representation of a mouth on the screen corresponding to and ~~synchronised~~ synchronized with the speech output.

9. (Currently Amended) A combination according to ~~any one of Claims 1 to 8 and including~~ Claim 1 further comprising within the sensor device means for illuminating an area of the printed material adjacent ~~the~~ a position at which the sensor device is pressed against the printed material.

10. (Currently Amended) A combination according to Claim 9 wherein the means for illuminating are actuated in response to ~~the~~ a particular value of a property of the printed material sensed by the sensor device and in accordance with conditions preset internally of the sensor device.

11. (Currently Amended) A combination according to ~~any one of Claims to 10 and including~~ Claim 1 further comprising within the sensor device means for sensing ~~the~~ a value of at least two properties of an area of the printed material against which the sensor device is pressed.

12. (Currently Amended) A combination according to Claim 11 wherein the sensor device includes a sensor module

adapted to produce an output varying in response to a combination of ~~the~~ two or more properties of the printed material sensed.

13. (Currently Amended) A combination according to Claim 11 or 12 wherein the two or more properties sensed are ~~the~~ infra-red absorption of the printed material and ~~its~~ colour color thereof.

14. (Currently Amended) A combination according to ~~any one of Claims 1 to 13~~ Claim 1, wherein the sensor device includes means within a sensor module incorporating a microprocessor or ASIC adapted to store data relating to a sequence of sensing operations carried out on the printed material and to produce an output dependent on such data as well as on ~~the at least~~ one property ~~or properties~~ of the printed material being sensed.

15. (Currently Amended) An interactive printed material and sensor device combination comprising printed material having information incorporated in printing applied to a substrate which is not comprehensible by ~~the~~ a human observer, and wherein the sensor device is adapted to sense a property of the printed material and discriminate between regions of ~~the~~ printing thereof, and wherein the sensor device is configured to distinguish the regions by measurement of the property of the printed material into at

least five categories, and to provide a human appreciable output varying in dependence on the measurement of the property made and/or a sequence of such measurements.

16. (Original) A combination according to Claim 15 wherein the printed material is configured as a multiple option question/answer paper, with a set of readable questions, each of which has, printed in spaced coordinated positions relative thereto, a set of answers, and wherein the printed answers each include an area of printing in a printing ink, a property of which may be sensed by the sensor device.

17. (Currently Amended) A combination according to Claim 15 or 16 wherein the printed material comprises a set of five or more printed areas differentially printed corresponding to the at least five ~~or more~~ categories into which the property of the an area measured by the sensor device may be allocated, and the sensor device includes means for adjusting the measurement of the property in question following carrying out a sequence of measurements on the a set of printed areas.

18. (Currently Amended) A combination according to ~~any one of Claims 15 to 17~~ Claim 15, wherein the sensor device is in the a form of an elongate casing incorporating a sensor head located at one end thereof and a display

screen at or near ~~the other~~ another end, the screen located so as to be viewed in a detection substantially transverse to ~~the~~ a direction of elongation of the casing.

19. (Currently Amended) A combination according to Claim 18 wherein associated with the sensor head is a pressure switch adapted to trigger sensing of the property of the printed material when ~~the~~ one end of the casing is applied to the surface of the substrate.

20. (Currently Amended) A combination according to ~~any one of Claims 15 to 19~~ Claim 15, wherein the sensor device is adapted to sense two or more different properties of the printed material and by measurements of those properties to allocate the area into one of a plurality of categories based on a combination of the measurements of the two or more ~~measurements~~ different properties.

21. (Currently Amended) A combination according to ~~any one of Claims 15 to 20~~ Claim 15, wherein ~~the~~ human appreciable output takes ~~the~~ a form of intelligible information displayed on a screen forming part of the sensor device.

22. (Currently Amended) A combination according to Claim 21 wherein the information is displayed following each measurement of ~~the~~ a property effected by the sensor device.

23. (Currently Amended) A combination according to Claim 21 wherein the information is displayed only after measurement of ~~the~~ a property of a sequence of areas successively brought into proximity with a part of the sensor device by ~~the~~ a user thereof, the information displayed being derived from ~~the~~ results of the sequence of measurements.

24. (Currently Amended) A combination according to Claim 23 wherein the information ~~is~~ displayed depends additionally on ~~the~~ overall time taken to complete the sequence.

25. (Currently Amended) A combination according to ~~any one of Claims 15 to 24 and Claim 15,~~ wherein the sensor device contains memory means enabling a sequence of measurements to be stored and logic means enabling a sense-perceptible output to be generated in consequence of a logical analysis of the sequence of measurements.

26. (Currently Amended) A combination according to ~~any one of Claims 1 to 25~~ Claim 1 or 15, wherein the sensor device is capable of discriminating between at least 5 levels of a property of the printed material.

27. (Currently Amended) A combination according to Claim 26 wherein the sensor device can discriminate between at least ten levels of ~~a~~ the property of the printed

material or at least 20 combinations of two properties of the printed material.

28. (Currently Amended) A combination according to Claim 26, ~~or 27~~ wherein the sensor device is adapted to effect calibration or re-calibration to assist in discrimination between the levels or combinations of properties.

29. (Currently Amended) A combination according to ~~any one of Claims 1 to 28~~ Claim 1 or 15, wherein the sensor device includes a sensor module which can be programmed or reprogrammed with data stored in a chip or other device forming part of or attached to the printed material.

30. (Original) A combination according to Claim 29 wherein the sensor module includes means for decoding a coded stream of infrared radiation corresponding to the stored data.

31. (Currently Amended) Interactive printed material and sensor apparatus comprising one or more sheets of printed material having a plurality of patches of printed ink thereon, and a sensor device including a sensor module capsule of discriminating property of the patches of printed ink, and output means capable of producing an audible or visible output in dependence on the interaction between the a patch and the sensor module ~~characterised by~~ having at

least one or more of the following improved features:

- configuring the sensor module such as to be able to distinguish between at least five and preferably at least ten different levels of infrared absorption;
- configuring the sensor module and the printed material with interactive means enabling self-calibration of the sensor module prior to its being used in conjunction with the printed material or during such use;
- providing means for sensing two or more properties of the patch of printed ink and discriminating the response of each such sensing into discrete signals and combining the responses thereby generated to discriminate a plurality of different conditions; ~~for example if the first property is infra-red absorption, the second property may be optical, e.g. colour, fluorescence, or non-optical, e.g. conductivity,~~
- providing memory means inside the sensor module capable of maintaining at least transiently a record of successive conditions sensed by the sensor module, and altering the future behaviour of the sensor module accordingly;
- providing a press switch in the sensor device and means within the sensor module to store and analyse data produced on sequential switch operations and, in

response thereto to produce a pre-selected [[output -]] visible or audible output [[-]] and/or to modify the an operational mode of the sensor module;

- providing the sensor device with an output display in the a form of a screen and icons, and wherein the screen and icons include at least one icon recognisably recognizably reflective of emotion, and providing within the sensor module software for analysing analyzing a series of successive inputs, and adjusting the a perceived emotion represented by the a screen icon accordingly;

- providing the sensor device with an audio output transducer and programming or configuring the sensor module to drive the transducer to produce an audio output selected from a range of possibilities depending upon the properties of an area of printed material against which the sensor device is placed. ~~The range may include recognisable words or phrases or recognisable sounds such as of cheering, sobbing or laughter;~~

- providing in the sensor device means capable of projecting on to an area of the printed material adjacent the an area against which a sensor head is pressed a patch of colour, ~~for example green for a right answer and red for a wrong one;~~

- providing in the sensor device means capable of illuminating ~~the an~~ area on the printed material adjacent an area against which a sensor head is pressed, the printed material being such as to reveal visibly to ~~the a~~ human eye, under such illumination, one or more printed features not, or not substantially, visible under normal illumination;
- configuring the sensor device in ~~the a~~ form of an elongate body having a sensor tip at one end and a screen adjacent or substantially adjacent ~~the other another~~ end, the screen being located extending along ~~the a~~ side of the elongate body and the sensor module being programmed to display alphanumeric information in accordance with ~~the~~ input received by the sensor device, where ~~the~~ direction of ~~the a~~ line or lines of alphanumeric information read from left to right runs transversely to ~~the a~~ longitudinal axis of the sensor device;
- configuring the sensor device as an elongate humanoid or animal figure with a sensor at one end ~~e.g. an infrared light-emitter/detector component~~, wherein the sensor is covered when the sensor device is not in use by a cover configured to represent footwear of the humanoid or animal figure;
- constructing the sensor device as an elongate unit with a sensor located on one end, the one end having a

removable cap to preserve protect the sensor, a from dust, etc., the side of the sensor device having a recess shaped and sized to enable the movable end cap to be press fitted therein, and wherein the removable end cap is captive and may be positioned as desired, press fitted into the recess or covering the sensor;

- providing within the sensor module a pre-programmable microprocessor or configurable ASIC or equivalent component and means connected thereto enabling data to be sent from and received by the microprocessor or ASIC via a coded infrared link, and wherein the printed material has associated with it therewith a data storage device which can be interrogated using a coded infrared signal to provide as an output a coded infrared signal which can be decoded by the sensor module and used to programme program or re-programme re-program the microprocessor or configure or reconfigure the ASIC therein.

32. (Currently Amended) Teaching or amusement apparatus comprising printed material and a sensor pen or wand designed to be grasped by the a user and brought into contact with the printed material to enable the pen or wand to sense a parameter or property of the a portion of the printed material in which the pen or wand come it comes into contact, wherein the an actual sensing process is triggered

by switch means which are actuated by contact between the printed material and the pen or wand, and wherein the pen or wand contains output means ~~such as a visual display or audible output, the with~~ display or audible output being driven in accordance with rules pre-programmed into a sensor module, ~~and characterised in that the wherein~~ a programmed nature of ~~the a~~ response to be displayed on a visual display or reflected in an audio output alters in response to a combination of ~~the~~ switching of the switch means, ~~the~~ value of the parameter or property sensed by the sensor when actuated following actuation of the switch means, and ~~the~~ timing of the switching of the switch means and the change from one sensed value of the parameter or property to another.